

Customer No. 24498
Serial No. 10/541,577
Final Office Action dated July 27, 2009

Docket No. PF030001

REMARKS

Claims 1-20, 22-24, and 26-28 are pending. Independent claims 1 and 16, and dependent claims 20, 22, 23 and 26, have been amended to more clearly and distinctly claim the subject matter that applicants regard as their invention. Claims 21 and 25 have been cancelled. Claim 28 has been added. Support for new claims 28 is believed to be found, for example, on p.8, l.28 – p.9, l.1 of the application as originally filed. No new matter is believed to be added by the amendments.

Responsive to the rejection of claims 22 and 26 under 35 USC 112, second paragraph, applicants submit that the rejections are overcome in view of the amendments to the claims. In particular, claim 22 has been amended to recite the "defined minimum level" and the phrase "to which the detected number of tracks within said first cluster is compared" has been deleted. Claim 26 has been amended to recite "first audio track being representative of the second cluster" for consistency with claim 1. Claim 26 has additionally been amended to recite "the another audio track" for consistency within the claim.

Responsive to the rejection of claims 1, 2, 4-10, 12, 13, 16-20, 23 and 26 under 35 USC 103(a) as being unpatentable over Obrador in view of Khan and Liou, applicants submit that for the reasons discussed below the amended claims are patentably distinguishable over the proposed combination of references.

The teachings of Obrador has been discussed in applicants' previous responses. Obrador discloses presenting a collection of media objects. Obrador does not disclose automatically creating a new cluster or classifying audio tracks according to characteristic parameters (physical, perceptual, psychological features).

Khan discloses analyzing audio files (Fourier transform, 8/60), using plural feature vectors (col.7: emotional, vocal, sound, situation, ensemble, genre,

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instrument) that are stored in a database together with other pre-computed audio file features. Audio signatures are generated. Input audio samples are compared with previously stored audio samples, based on audio signatures.

As acknowledged by the Office Action, Obrador and Khan must detect and determine characteristic parameters of new audio tracks in order to organize the growing collection, but do not disclose specifics of clustering a newly added track.

In particular, applicants submit that the following features are not disclosed by Obrador and Khan:

- detecting addition of a new audio track
- determining characteristic parameters of the new audio track
- determining that dissimilarity between the newly added track and existing clusters, according to said characteristic parameters used for classification, reaches at least a defined minimum level
- upon said determining, automatically creating a new, second cluster
- assigning the new audio track to said new, second cluster

Applicants submit that the proposed combination of Liou with Obrador and Khan fails to disclose or suggest each and every limitation of, for example, independent claim 1.

Liou discloses in a system for interactive organization and browsing of video shots. When a new shot is available, the city block distance between its color feature vector and the means or feature vectors of the existing clusters is computed. The new shot is grouped into the cluster with the minimum distance from its feature vector, provided the minimum distance is less than a threshold. If no existing cluster is found for the new shot, a new cluster is created with the feature vector of the new shot as its mean (see col.10, l.41-50). Details are given

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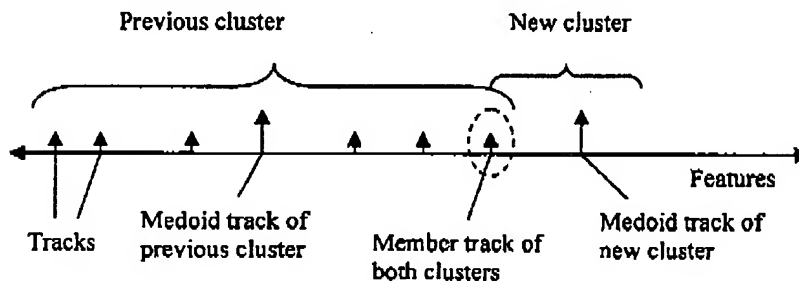
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in Fig.11 of Liou: In step K of Fig.11, it is checked if the maximum absolute value for M-E (i.e. difference between mean edge feature vector and edge feature vector of current member) is greater than an edge threshold. If the test in step K is true, then in step L the member is deleted from the cluster and placed in a new cluster (see col.11, l.25-30). The edge threshold is predetermined (see claim 15).

The present invention as claimed in claim 1 comprises automatic re-classification as a response to the detection of the addition of a new track, wherein further tracks that were previously classified in the neighbour cluster may also be classified in the new cluster, since they may be closer to the newly added track than to their previous medoid. This is schematically shown here:



This is disclosed, for example, on p.5, l.26-29 and p.7, l.5-10 of the specification as originally filed. The new cluster may cover a considerably smaller range than the previous cluster.

In Liou's system, no automatic re-classification after creation of a new cluster is shown, and it is not possible that a shot may be a member of more than one cluster.

Therefore, Liou does not show all the claimed features that Obrador and Khan also fail to disclose.

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Additionally, Liou teaches not to use K-means clustering, since for video shots no a priori knowledge of the scattering, and thus the number and nature of potential clusters, is available (see col.10, l.20-30). Thus, one skilled person would understand to not apply Liou's teaching in cases where the K-means clustering can be used. Liou does not mention that unsupervised learning methods like the K-means algorithm or self organizing maps can be used for audio clustering (see p.6, l.29-31 of present application).

Furthermore, applicants submit that the stated approach, according to which "the skilled person would be motivated to look elsewhere for such a teaching in order to realize the invention" constitutes use of impermissible hindsight.

Both Obrador and Khan disclose maintaining a dynamic database, including the adding of new shots in the case of Obrador, so that they give no motivation to the skilled person to search for further documents.

Instead, in view of Obrador and Khan the skilled person would be concerned with trying to solve the following problem addressed by the combination; how to maintain a dynamic database automatically, and how to handle a new track that is considerably distinct from existing tracks, and how to keep clusters at a practically useful size, after a new track was added. Further, it has been recognized by the present inventors that cluster sizes should be re-balanced after addition of a new track. This aspect also does not appear to be recognized or addressed by Obrador or Khan.

In view of the above, applicants submit that claim 1, and the claims that depend therefrom, are patentably distinguishable over the suggested combination of Obrador, Khan and Liou. Claim 16, and the claims that depend therefrom, recite features similar to those of claim 1 in apparatus form, and thus, are believed to be patentably distinguishable over the suggested combination for at least the

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same reasons as those applied to claim 1.

Responsive to the rejection of claims 14 and 15 under 35 USC 103(a) as being unpatentable over Obrador, Khan, and Liou, in view of Mercer, applicants submit that for the reasons discussed below the amended claims are patentably distinguishable over the proposed combination of references.

Applicants submit that even assuming arguendo that Mercer provides the teaching as alleged by the Office Action, Mercer fails to overcome the defect of Obrador, Khan and Liou as applied to claim 1, to which claims 14 and 15 depend. Therefore, applicants submit that claims 14 and 15 are patentably distinguishable over the proposed combination of references.

Responsive to the rejection of claims 21, 22, 24, and 25 under 35 USC 103(a) as being unpatentable over Obrador, Khan and Liou, in view of Robinson, with further support from Ferhatosmanoglu, applicants submit that for the reasons discussed below the amended claims are patentably distinguishable over the proposed combination of references.

Applicants submit that even assuming arguendo that Robinson and Ferhatosmanoglu provide the teaching as alleged by the Office Action, these references fail to overcome the defect of Obrador, Khan and Liou as applied to claims 1 and 16, to which claims 22, 24, and 25 depend. Therefore, applicants submit that the subject claims are patentably distinguishable over the proposed combination of references.

In view of the foregoing amendments and remarks, it is respectfully submitted that all the claims now pending in the application are in condition for allowance. Early and favorable reconsideration of the case is respectfully requested.

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It is believed that no additional fees or charges are currently due. However, in the event that any additional fees or charges are required at this time in connection with the application, they may be charged to Applicant's representatives Deposit Account No. 07-0832.

Respectfully submitted,
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